

## **CONSTRUCTION SPECIFICATION**

### **VA-783. TIMBER FABRICATION AND INSTALLATION**

#### **1. SCOPE**

The work shall consist of the construction of timber structures and timber portions of composite structures.

#### **2. MATERIALS**

Structural timber and lumber shall conform to the requirements ASTM D 245 or as shown on the plans. Treated timber and lumber shall be impregnated with the specified type and quantity of preservative. Unless otherwise specified on the drawings, timber and lumber shall be treated with chromated copper arsenate and shall have a minimum net retention of 2.5 pounds per cubic foot for placement in sea water, 0.6 pounds per cubic foot for structural posts or lumber in ground contact, and 0.4 pounds per cubic foot for lumber used above ground.

Hardware, except cast iron, shall be galvanized as specified for iron and steel hardware in ASTM A 123, ASTM A 153, or ASTM B 633 as appropriate. Unless otherwise specified, structural steel shapes, plates, and rods shall not be galvanized. Nuts, driftbolts, dowels, and screws shall be either wrought iron or steel.

Steel bolts shall conform to the requirements of ASTM A 307. When galvanized or zinc-coated bolts are specified, the zinc coating shall conform to the requirements of ASTM A 123, ASTM A 153, or ASTM B 633 as appropriate.

Washers shall be ogee gray iron castings or malleable iron castings unless washers cut from medium steel or wrought iron plate are specified on the drawings. Holes in washers shall have a maximum diameter of 1/8 inch larger than the diameter of the bolt. Split ring connectors, tooth ring connectors, and pressed steel shear plate connectors shall be manufactured from hot-rolled, low carbon steel conforming to the requirements of ASTM A 711, Grade 1015. Malleable iron shear plate connectors and spike grid connectors shall be manufactured in conformance with the requirements of ASTM A 47, Grade No. 35018. All connectors shall be of approved design and the type and size specified.

Structural shapes, rods, and plates shall be structural steel as shown on the plans. No welds are permitted in truss rods or other main members of trusses or girders.

#### **3. WORKMANSHIP**

All framing shall be true and exact. Timber and lumber shall be accurately cut and assembled to a close fit and shall have even bearing over the entire contact surfaces. No open or shimmed joints will be accepted. Nails and spikes shall be driven with just sufficient force to set the heads flush with the surface of the wood. Deep hammer marks in wood surfaces shall be considered evidence of poor workmanship and sufficient cause for rejection of the work.

Holes for round driftpins and dowels shall be bored with a bit 1/16 inch smaller in diameter than that of the driftpin or dowel to be used. The diameter of holes for square driftpins or dowels shall be equal to one side of the driftpin or dowel. Holes for machine bolts and rods shall be bored with a bit of the same diameter as that of the bolt. Holes for lag screws shall be bored with a bit not larger than the body of the screw at the base of the thread.

Washers shall be used in contact with all bolt heads and nuts that would otherwise be in contact with wood. All nuts shall be checked or burred to effectively prevent nuts from removal, with a pointed tool after being finally tightened.

Surfacing, cutting and boring of timber and lumber shall be kept to the practical minimum where cutting of treated timber and lumber is required. All cuts and abrasions shall be carefully trimmed and coated with not less than three brush coats of a commercially available wood preservative or sealer.

All recesses and holes cut or bored in treated timber and lumber shall be swabbed with not less than three coats of a commercially available wood preservative or sealer. After field treatment any unfilled holes shall be plugged with tightly fitting wooden plugs treated with a commercially available wood preservative or sealer.

#### 4. HANDLING AND STORING MATERIALS

All timber and lumber stored at the site of the work shall be neatly stacked on supports a minimum of 12 inches above the ground surface and protected from the weather by suitable covering(s). Untreated material shall be stacked and stripped to permit free circulation of air between the tiers and courses. Treated timber may be close-stacked. The ground surface for the stockpile of timber and lumber shall be free of weeds and rubbish. One end of the pile should be raised to promote drainage. The use of cant hooks, peavies, or other pointed tools except end hooks is not permitted in the handling of structural timber and/or lumber. Treated timber shall be handled with rope slings or by other methods that prevent the breaking or bruising of outer fibers or penetration of the surface in any manner.

#### 5. TRUSSES

Wood trusses shall be designed by a Virginia registered professional engineer to meet the plan requirements and to handle the loads shown on the drawings. The stamped truss design shall be provided to the NRCS or SWCD representative before placement of the trusses.

Manufactured trusses shall be installed in accordance with the manufacturer's instructions. All modifications of trusses must be approved by the engineer who approved the truss design.

The truss anchorage, bracing and support shall be as shown on the drawings or as approved by the engineer.